What is claimed is:

1. In a packet transmission system having multiple antennas, a method of selecting a transmission antenna,
5   comprising the steps of:

transmitting data through a sequentially selected antenna; and

if error occurs in the transmitted data, retransmitting corresponding erroneous data.

10

2. The method of claim 1, wherein each of the data transmission and retransmission steps further comprises the step of checking whether a receiver correctly receives the data.

15   3. The method of claim 2, the checking step comprising the steps of:

receiving a response signal from the receiver; and

checking whether the response signal is a retransmission request signal.

20

4. The method of claim 3, wherein the response signal is an acknowledgment signal of a physical layer.

18

5. The method of claim 1, the retransmission step comprising the steps of:

selecting the specific antenna; and

retransmitting the corresponding erroneous data through the
5 selected specific antenna.

6. The method of claim 5, after the retransmission of erroneous data step, further comprising the steps of:

sequentially selecting the antennas again; and

10   transmitting rest of the data through the selected antenna.

7. The method of claim 5, wherein the specific antenna is one of the antennas except the antenna having performed initial transmission of erroneous data.

15

8. The method of claim 1, the retransmission step comprising the steps of:

selecting the specific antenna;

retransmitting the corresponding erroneous data through the
20 selected specific antenna; and

transmitting rest of the data through the selected specific antenna.

9.   The method of claim 8, wherein the specific antenna is one of the antennas causing no transmission error.

10.   The method of claim 8, wherein the rest of the data is kept being transmitted until other data transmission error occurs.

11.   The method of claim 1, wherein the data transmission is downlink transmission.

12.   The method of claim 1, wherein the packet transmission is based on a mobile communication system.

13.   The method of claim 1, wherein the packet transmission system performs the transmission according to open loop transmit diversity.

14.   The method of claim 13, wherein the packet transmission system performs the transmission according to TSTD (time switched transmit diversity).

15.   The method of claim 1, wherein an error control method of ARQ (automatic repeat request) is appled to the packet transmission system.

16. In a packet transmission system having multiple antennas, a method of selecting a transmission antenna, comprising:

checking a response signal of a receiver; and

if the response signal is a retransmission request signal, retransmitting corresponding erroneous data through a specific antenna.

17. The method of claim 16, the checking step comprising the steps of:

sequentially selecting the antennas;

transmitting data through the selected antenna; and

receiving to check the response signal of the receiver.

18. The method of claim 16, the retransmission step comprising the steps of:

selecting the specific antenna; and

retransmitting the corresponding erroneous data through the selected specific antenna.

19. The method of claim 18, after the retransmission step, further comprising the steps of:

sequentially selecting the antennas again; and

transmitting rest of the data through the selected antenna.

21

20.   The method of claim 18, wherein the specific antenna is one of the antennas except the antenna having performed initial transmission of erroneous data.

5

21.   The   method   of   claim   16,   the   retransmission   step comprising the steps of:

selecting the specific antenna;

retransmitting the corresponding erroneous data through the

10   selected specific antenna; and

transmitting rest of the data through the selected specific antenna.

22.   The method of claim 21, wherein the specific antenna is

15   one of the antennas causing no transmission error.

23.   The method of claim 21, wherein the rest of the data is kept being transmitted until retransmission request signal is received.

20

24.   The method of claim 16, wherein the data transmission is downlink transmission.

25. The method of claim 16, wherein the packet transmission system performs the transmission according to open loop transmit diversity.

5   26. The method of claim 25, wherein the packet transmission system performs the transmission according to TSTD (time switched transmit diversity).

27. The method of claim 16, wherein an error control method
10   of ARQ (automatic repeat request) is appled to the packet transmission system.

28. The method of claim 27, wherein the response signal is ACK or NACK signal according to ARQ.
15

29. The method of claim 16, wherein the packet transmission is based on a mobile communication system.